Appendix 7 - South Dakota Inadvertent Return Plan

South Dakota Inadvertent Return Plan

Project Name:
SCS Carbon Transport LLC
Midwest Carbon Express (MCE) Project

Revision History

REVISION	DATE	REVISION DESCRIPTION	PREPARED BY:	REVIEWED BY:	APPROVED BY:
1	3/29/24	Update Plan	SCS	SCS	JZ

SUMMIT CARBON SOLUTIONS

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1 Introduction

In South Dakota, SCS Carbon Transport LLC (SCS) is proposing to utilize the horizontal directional drill (HDD) crossing method, a trenchless excavation technique, during the construction of the Midwest Carbon Express (MCE) Project. The HDD crossing method will be used to route the pipeline under obstacles including roads, railroads, waterbodies, sensitive areas, and will result in minimal surface impacts.

SCS has prepared this *Horizontal Directional Drill Inadvertent Return Plan* (Plan) which outlines operational procedures and responsibilities for the prevention, containment, and clean-up of inadvertent returns associated with the HDD process. The objective of this Plan is to:

- Minimize the potential for an inadvertent return of drilling fluids associated with HDD activities;
- Provide for the timely detection of inadvertent returns;
- Protect environmentally sensitive areas while responding to an inadvertent return;
- Ensure an organized, timely, and "minimum-impact" response in the event of an inadvertent return of drilling fluids; and
- Ensure that all appropriate notifications are made immediately.

2 Drilling Fluid and Drilling Fluid System

The HDD process involves the use of drilling fluid containing water and bentonite slurry as a coolant and lubricant for the drill head. The slurry also helps to stabilize the boreholes and aids in the removal of cuttings during the drilling process. Bentonite is a naturally occurring, non-toxic, inert substance that meets National Sanitation Foundation/American National Standards Institute 60 NSF Drinking Water Additives Standards and is frequently used for drilling potable water wells.

Bentonite, however, if released into waterbodies, has the potential to adversely impact fish, fish eggs, aquatic plants, and benthic invertebrates if in heavy enough concentrations to cover the bottom with sediment.

The drilling fluid is prepared in a mixing tank containing both new and recycled drilling fluid. The fluid is pumped at rate of 100 to 1,000 gallons per minute (gpm) through the center of the drill pipe to the cutters. Return flow is through the annulus created between the wall of the boring and the drill pipe. The cuttings are carried in this return flow back to either the entry or the exit pit, depending on a combination of elevation difference and drilling/hole opening direction.

Once in the receiving pit, the fluid moves to the pickup pit to be pumped to the fluid processing equipment. Typically, shaker screens, desanders, and desilters remove cuttings in a series of decreasing screen sizes to remove finer cuttings from the drilling fluid. The cleaned and recycled fluid is returned to the mixing tank and pumped for reuse in the borehole. Following completion of the drill, cuttings and the bentonite clay will be disposed of in accordance with applicable environmental regulations.

During HDD drilling, there is the potential for unintentional loss or seepage of drilling fluid into the native material through which the drill passes. In some cases, the drilling fluid may travel through natural fissures or loose soil to the surface resulting in what is commonly referred to as an inadvertent return or a frac-out.

3 CONTRACTOR RESPONSIBILITES AND REQUIREMENTS

The HDD contractor is responsible for execution of all aspects of the HDD operation, including actions for detecting and controlling the inadvertent return of drilling fluid. SCS will monitor the progress and actions of the HDD contractor using a qualified onsite inspector.

The HDD contractor will be required to conduct the HDD operation with the types and quantities of equipment and materials necessary to clean up a return, which would typically consist of a tracked hydraulic excavator, straw or hay bales, stakes to secure bails, silt fence, sandbags, shovels, pumps, and any other materials or equipment deemed necessary. The HDD contractor may also provide a vacuum truck and operator to be on call during drilling operations.

Contractors will develop site specific plans for each HDD crossing, identifying any site-specific requirements and provisions to be made to meet site conditions. In order to facilitate the creation of these site-specific plans, SCS will coordinate with an HDD contractor to review the number and depth of site-specific boreholes for each HDD location. Based upon these reviews, a geotechnical contractor will complete all applicable borehole investigations. These boreholes are offset from the drill path to prevent a potential pathway for an inadvertent return, while still providing accurate ground conditions. Boreholes provide the HDD contractor with the site-specific geologic information they should expect to encounter during their HDD operations and allows them to address any concerns they could have with a variety of soil types. Borehole soil geology results will be reviewed prior to HDD operations to evaluate if further onsite investigation would be required as a result of the geotechnical characterizations. For applicable wetlands and waterbodies, a hydraulic fracture and inadvertent return analysis may be performed and used in conjunction with a contractor's pressure tools to further mitigate potential risks. Glacial till mitigation techniques will be evaluated when applicable by the HDD contractor based upon the geological information found at each site. Available aquifer mapping and information will be shared with the HDD contractor prior to HDD operations to mitigate potential risks at these locations.

Additional equipment that may be required during HDD operations include a light tower in case clean-up operations are needed after dark, a boat with relevant safety equipment during the crossing of large waterbodies, and a leak free hose to carry spent drilling mud to containment for disposal.

4 FLUID MIGRATION DETECTION

Drilling crews will be responsible for monitoring and detection of inadvertent returns. The most obvious signs of an inadvertent return are the visible pooling of drilling mud on the surface or a sudden decrease in drilling mud pressure or return volumes during drilling operations. Drilling and mud system personnel

will continuously monitor drilling pressure and return volumes and immediately report reductions or anomalies to the SCS onsite inspector. For areas that cannot be easily accessed for visual inspection during drilling operations, drones will be used as required to visually monitor the drill path.

5 CORRECTIVE ACTION FOR AN INADVERTENT RETURN

If an inadvertent return is discovered, SCS will contain the return as described below. If a return occurs in a wetland or waterbody, the Contractor, Construction Inspector, or Environmental Inspector (EI) will immediately notify SCS's construction and project management personnel, who will notify the appropriate regulatory agencies. SCS will notify the appropriate U.S. Army Corps of Engineers office immediately upon discovery of an inadvertent return in a wetland or waterbody, detailing the location and nature of the return, corrective actions being taken, and whether the return poses any threat to public health and safety.

Corrective Action

SCS will address an inadvertent return immediately upon discovery. Containment equipment including portable pumps, hand tools, sand, hay bales, silt fencing, and lumber will be readily available as needed and provided by the HDD contractor. The following measures will be implemented to minimize or prevent further returns, contain the release, and clean up the affected area:

Wetland or Waterbody Return

- Inspection will be initiated to determine the potential movement of released drilling mud within the wetland or waterbody.
- Drilling mud returns will be collected at the drill entry location for future analysis, as required.
- Monitoring of the return will be documented by the El and SCS will retain photographs of release events.
- If necessary, the HDD contractor will implement modifications to the drilling technique or composition of drilling fluid (e.g., increasing the depth of the drill, thickening of mud by increasing bentonite content, etc.) as appropriate to minimize or prevent further returns of drilling mud.
- Reasonable measures, within the limitation of directional drilling technology and Contractor's capability, will be taken to re-establish drilling mud circulation.
- SCS will evaluate the return to determine if containment structures are warranted to effectively contain the release. When making this determination, SCS will also consider if placement of containment structures will cause additional adverse environmental impact.
- Upon completion of the drilling operation, SCS will consult with applicable regulatory agencies to determine if additional clean-up requirements are required.

- If public health and safety are threatened by the inadvertent return, drilling operations will be shut down until the threat is eliminated.

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- If necessary, the HDD contractor will implement modifications to the drilling technique or composition of drilling fluid (e.g., increasing the depth of the drill, thickening of mud by increasing bentonite content, etc.) as appropriate to minimize or prevent further returns of drilling mud.
- SCS will place containment structures at the affected area to prevent migration of the return.
- If the amount of the return is large enough to allow collection, the drilling mud released into containment structures will be collected and returned to either the drilling operation or a disposal site.
- If the amount of the return is not large enough to allow collection, the affected area will be diluted with fresh water and allowed to dry. If necessary, steps will be taken to prevent silt-laden water from flowing into a wetland or waterbody.
- If public health and safety are threatened by an inadvertent return, drilling operations will be shut down until the threat is eliminated.

6 CONTAINMENT OF DRILLING FLUID RETURN

Immediately following the detection of the inadvertent drilling fluid return, containment, and clean-up operations shall commence. For returns on land, Contractor shall use straw bales, silt fences, sandbags, and earthen berms to prevent fluid from migrating or flowing from the immediate area of the discharge. If the volume returned is too small for containment measures or if the return occurs in an environmentally sensitive area where construction of containment measures can cause additional damage, the return will be diluted with fresh water and allowed to dry naturally if there is no potential for migration into a waterbody.

For returns in shallow water, the HDD contractor shall install staked sediment barriers as described in the MCE Project's Environmental Construction Plan. Removal by vacuum truck may be attempted if deemed appropriate. The decision to proceed with the drilling operation will be at the sole discretion of the SCS representative after all methods to seal off the location of the discharge have been completed. Underwater returns may be allowed to dissipate where clean-up would cause more damage than leaving the material in place. Where clean-up can be accomplished without causing additional damage, the clean-up of the spill will be conducted.

Once drilling operations have commenced, the location of the return will be closely monitored and managed. If the return cannot be managed after drilling operations have restarted, drilling operations will be shut down and other corrective actions will be pursued. Tripping out, or the physical act of

pulling the drill pipe out of the bore, and then starting the drill in a new location on a new trajectory may be required.

7 CLEAN-UP OF RETURNS

The cleanup shall commence as soon as practical after the return is discovered. Clean-up shall include removal of all visible drilling mud located in accessible areas. Removal methods will vary based on the volume of the return and the site-specific conditions. Removal equipment may include vacuum trucks, loader and track hoe equipment, small pumps, shovels, buckets, brooms, and squeegees. If the return occurs in a sensitive area, the released drilling fluid will be cleaned up and the return area will be restored as close to the original condition as feasible. It may be necessary to store the returned mud on-site prior to disposal.

8 AGENCY NOTIFICATION PROCEDURE

A return will be reported first to SCS, who in turn will notify responsible agencies, as required.